

CORRECTED VERSION

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
2 June 2005 (02.06.2005)

PCT

(10) International Publication Number  
WO 2005/051000 A1

(51) International Patent Classification<sup>7</sup>: H04N 7/24

(21) International Application Number:  
PCT/KR2004/001130

(22) International Filing Date: 13 May 2004 (13.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
10-2003-0083015

21 November 2003 (21.11.2003) KR  
10-2004-0014032 2 March 2004 (02.03.2004) KR

(71) Applicant (for all designated States except US): ELEC-  
TRONICS AND TELECOMMUNICATIONS RE-  
SEARCH INSTITUTE [KR/KR]; 161, Gajeong-dong,  
Yuseong-gu, Daejeon 305-350 (KR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): JEONG, Se-Yoon  
[KR/KR]; #101-1203, Geumseong Baekjo Apt., Bi-  
rae-dong, Daedeok-gu, Daejeon 306-769 (KR). KIM,

Kyu-Heon [KR/KR]; #201-904 Saemmeori Apt., Dun-  
san-dong, Seo-gu, Daejeon 302-777 (KR). KIM, Wonha  
[KR/KR]; #204-205 Dohyeon Hyundai Apt., 165, Sing-  
gal-ri, Giheung-eup, Yongin-si, Gyeonggi-do 449-952  
(KR). KIM, Jin-Woong [KR/KR]; #305-1603 Expo Apt.,  
Jeonmin-dong, Yuseong-gu, Daejeon 305-761 (KR).

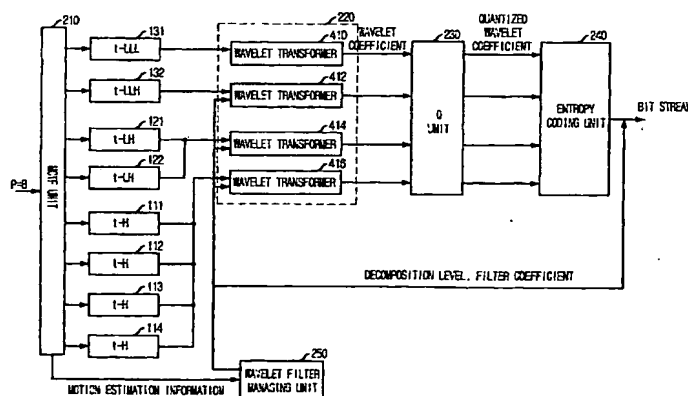
(74) Agent: SHINSUNG PATENT FIRM; 2F, Line Bldg.,  
823-30, Yeoksam-dong, Kangnam-ku, Seoul 135-080  
(KR).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,  
MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH,  
PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,  
TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: INTERFRAME WAVELET CODING APPARATUS AND METHOD CAPABLE OF ADJUSTING COMPUTA-  
TIONAL COMPLEXITY



(57) Abstract: Provided is an inter-frame wavelet coding apparatus that can reduce the computation complexity of a decoder by adjusting a decomposition level and a filter length based on the information amount of a frame during wavelet transform and a method therefor. The inter-frame wavelet coding apparatus includes: a Motion Compensated Temporal Filtering (MCTF) unit for computing a motion vectors of a group of pictures (GOP) and filtering the GOP with respect to the temporal axis, to thereby obtain filtered frame; a wavelet transforming unit for performing spatial wavelet transform on the filtered frame and outputting a wavelet coefficient; a quantization unit for quantizing the wavelet coefficient; an entropy coding unit for entropy-coding the motion vector computed in the MCTF unit and the quantized wavelet coefficient, to thereby generate an entropy-coded bit stream; and a wavelet filter managing unit for selecting a decomposition level and a filter length for the wavelet transforming unit based on motion estimation information of the GOP video computed in the MCTF unit, wherein the decomposition level and the filter length are included in the entropy-coded bit stream.



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

- *as to non-prejudicial disclosures or exceptions to lack of novelty (Rule 4.17(v)) for all designations*
- *as to non-prejudicial disclosures or exceptions to lack of novelty (Rule 4.17(v)) for all designations*
- *as to non-prejudicial disclosures or exceptions to lack of novelty (Rule 4.17(v)) for all designations*
- *as to non-prejudicial disclosures or exceptions to lack of novelty (Rule 4.17(v)) for all designations*

**Published:**

- *with international search report*
- *with a declaration as to non-prejudicial disclosures or exceptions to lack of novelty*

**(48) Date of publication of this corrected version:**

3 November 2005

**(15) Information about Correction:**

see PCT Gazette No. 44/2005 of 3 November 2005, Section II

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*